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(54) **GPS CARRIER-PHASE BASED RELATIVE NAVIGATION**

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CPC ***G01C 21/20*** (2013.01); ***G01S 19/01*** (2013.01); ***G05D 1/042*** (2013.01); ***G05D 1/0808*** (2013.01)

(58) **Field of Classification Search**
CPC G05D 1/02; G05D 1/042; G05D 1/0808; G01C 21/20; G01S 19/01
See application file for complete search history.

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(57) **ABSTRACT**

Systems and methods for navigation of a vehicle may carry out one or more operations including, but not limited to: obtaining coordinates of a vector connecting two points in space using carrier phase measurements from global navigation system satellites (GNSS); setting the vector as an intended path of a vehicle; storing carrier phase signals from a GNSS receiver received at a first position of the vehicle; receiving carrier phase signals from a GNSS receiver at a second position of the vehicle; and determining a position of the vehicle relative to the intended path from one or more carrier phase signals received at the second position and one or more stored carrier phase signals received at the first position.

20 Claims, 7 Drawing Sheets